## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of the Claims

1. (currently amended)  In a video encoder having a processor, a video encoding method for ~~selecting the mode of~~ encoding a current macroblock of an inter-coded frame, the method comprising at least one of:

checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes;

checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock;

checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes; and

adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met,

wherein the method further comprises encoding the current macroblock using the selected mode for the current macroblock.

2. (original)  A video encoding method as defined in Claim 1, the method comprising checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes.

3.  (original)  A video encoding method as defined in Claim 1 wherein said first modes comprise the quadratic modes of SKIP, 16x16, 8x8, and 4x4.

4.  (original)  A video encoding method as defined in Claim 1, further comprising checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock.

5.  (original)  A video encoding method as defined in Claim 1, further comprising checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes.

6.  (original)  A video encoding method as defined in Claim 1, further comprising adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met.

7.  (original)  A video encoding method as defined in Claim 1, further comprising:
       initially performing motion estimation only for a subset of the possible block sizes; and
       using the motion information to determine if other motion estimation or complexity measures should be performed for other block sizes.

8.  (original)  A video encoding method as defined in Claim 7 wherein said first modes are checked first and their motion information is used to decide if other modes needs to be checked.

9.  (original)  A video encoding method as defined in Claim 1 wherein spatial/temporal neighboring macroblock and block partition information is used to decide the subset of possible block sizes or inter/intra modes that need to be checked.

10. (original) A video encoding method as defined in Claim 1, further comprising:

initially performing mode checking for a subset of both inter modes and intra modes;

calculating a complexity measure responsive to the mode checking; and

using the complexity measure to determine if other inter modes and intra modes should be performed.

11. (original) A video encoding method as defined in Claim 6 wherein the early stop criteria are based on adaptive thresholding to stop checking other inter or intra modes.

12. (original) A video encoding method as defined in Claim 1 wherein early termination takes place if spatially or/and temporally neighboring macroblocks have a specific relationship with the motion information of the current macroblock after examining a specific mode.

13. (currently amended) A video encoder having a processor for encoding ~~video signal data and selecting the mode of~~ a current macroblock of an inter-coded frame, the encoder comprising the processor and at least one of:

first means for checking the first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes;

macroblock means for checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock;

subset means for checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes; and

stopping means for adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met,

<u>wherein the encoder further comprises means for encoding the current macroblock using the selected mode for the current macroblock.</u>

14. (original) A video encoder as defined in Claim 13, the encoder comprising first-checking means for checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes.

15. (original) A video encoder as defined in Claim 13 wherein said first modes comprise the quadratic modes of SKIP, 16x16, 8x8, and 4x4.

16. (original) A video encoder as defined in Claim 13, further comprising neighbor-checking means for checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock.

17. (original) A video encoder as defined in Claim 13, further comprising intra-checking means for checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes.

18. (original) A video encoder as defined in Claim 13, further comprising thresholding means for adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met.

19. (original) A video encoder as defined in Claim 13, further comprising:
    motion-estimation means for initially performing motion estimation only for a subset of the possible block sizes; and

determination means for using the motion information to determine if other motion

estimation or complexity measures should be performed for other block sizes.

20. (original) A video encoder as defined in Claim 19 wherein said first modes are

checked first and their motion information is used to decide if other modes needs to be checked.

21. (original) A video encoder as defined in Claim 13 wherein spatial/temporal

neighboring macroblock and block partition information is used to decide the subset of possible

block sizes or inter/intra modes that need to be checked.

22. (original) A video encoder as defined in Claim 13, further comprising:

inter/intra checking means for initially performing mode checking for a subset of both

inter modes and intra modes;

complexity means for calculating a complexity measure responsive to the mode

checking; and

inter/intra determination means for using the complexity measure to determine if other

inter modes and intra modes should be performed.

23. (original) A video encoder as defined in Claim 18 wherein the early stop criteria are

based on adaptive thresholding to stop checking other inter or intra modes.

24. (original) A video encoder as defined in Claim 13 wherein early termination takes

place if spatially or/and temporally neighboring macroblocks have a specific relationship with

the motion information of the current macroblock after examining a specific mode.

25. (currently amended) A computer readable non-transitory medium for performing  a

method for selecting a mode of a current macroblock of an inter-coded frame, the method

comprising at least one of:

checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes;

checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock;

checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes; and

adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met,

wherein the method further comprises encoding the current macroblock using the selected mode for the current macroblock.

26. (currently amended)  A computer readable non-transitory medium as defined in Claim 25, ~~the signal data resulting from~~ the method comprising checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes.

27. (previously presented)  A computer readable non-transitory medium as defined in Claim 25 wherein said first modes comprise the quadratic modes of SKIP, 16x16, 8x8, and 4x4.

28. (currently amended)  A computer readable non-transitory medium as defined in Claim 25, ~~the signal data further resulting from~~ the method further comprising checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock.

29. (currently amended)  A computer readable non-transitory medium as defined in Claim 25, ~~the signal data further resulting from~~ <u>the method further comprising</u> checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes.

30. (currently amended)  A computer readable non-transitory medium as defined in Claim 25, ~~the signal data further resulting from~~ <u>the method further comprising</u> adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met.

31. (currently amended)  A computer readable non-transitory medium as defined in Claim 25, ~~the signal data further resulting from~~ <u>the method further comprising</u>:
      initially performing motion estimation only for a subset of the possible block sizes; and
      using the motion information to determine if other motion estimation or complexity measures should be performed for other block sizes.

32. (previously presented)  A computer readable non-transitory medium as defined in Claim 31 wherein said first modes are checked first and their motion information is used to decide if other modes needs to be checked.

33. (previously presented)  A computer readable non-transitory medium as defined in Claim 25 wherein spatial/temporal neighboring macroblock and block partition information is used to decide the subset of possible block sizes or inter/intra modes that need to be checked.

34. (currently amended)  A computer readable non-transitory medium as defined in Claim 25, ~~the signal data further resulting from~~ <u>the method further comprising</u>:
      initially performing mode checking for a subset of both inter modes and intra modes;
      calculating a complexity measure responsive to the mode checking; and

using the complexity measure to determine if other inter modes and intra modes should

be performed.


35.  (previously presented)  A computer readable non-transitory medium as defined in

Claim 30 wherein the early stop criteria are based on adaptive thresholding to stop checking

other inter or intra modes.


36.  (previously presented)  A computer readable non-transitory medium as defined in

Claim 25 wherein early termination takes place if spatially or/and temporally neighboring

macroblocks have a specific relationship with the motion information of the current macroblock

after examining a specific mode.


37.  (currently amended)  In a video encoder having a processor, a video encoding

method for selecting the encoding mode of a macroblock of an inter-coded frame, the method

comprising:

       selecting a subset of macroblock modes for encoding;

       comparing said subset of macroblock modes for coding efficiency; and

       selecting a mode having favorable coding efficiency, responsive to said step of

comparing modes; and

       encoding the macroblock using the selected mode.